

Lead, Zinc, and Copper Metal Distribution in Sediment Inventories within the Hudson River Estuary

Elise Luce¹, Frank Nitsche² and Tim Kenna²

¹Department of Geological Sciences and Environmental Studies, Eckerd College

²Lamont Doherty Earth Observatory of Columbia University, Palisades, NY

Extending just over 315 miles, the Hudson River is a dynamic estuarine ecosystem, which has always played a pivotal role in the development of civilization and industrialization. Today, better understanding of this indispensable natural resource is crucial for cleaning up anthropocentric effects and for future management in terms of environmental health, development, and preservation. Analysis of the overall sedimentary budgets and depositional/ erosional patterns provides a basis for addressing the associated contaminants. In this study we analyzed 38 sediment cores from the central Hudson River Estuary. Using X-ray Fluorescence spectrometry, heavy metal inventories for lead (Pb), zinc (Zn), and copper (Cu) were determined, and can be used to identify sediments deposited within the past 20th century. As well as provide evidence for deposition or erosion at a particular site. Comparison of this new data with results from other parts of the estuary --done in previous years, allows improved analysis of depositional trends and identification of areas with high metal content. The results of this project improve understanding of depositional patterns within the Hudson River Estuary, as well as identify proxies for contaminated deposition, and possible sources, accrued in the 20th century.